MANUFACTURE AND USE OF PLATE GLASS IN ENGLAND.

The demand for plate glass increases rapidly, and if it were reduced in price, as it might be, now that the trade is free from interference, would be much greater still. Mr. H. Howard has published a view of "Plate glass making in England in 1846, contrasted with what it was in 1827." The particulars are curious, and shew that large plates, which could not be made in 1827 for less than 10s. per foot superficial, can now be produced for something under 3s. per foot. The increase of sale which attended reduction of price is extraordinary. In 1827, plate glass sold for about (average) 12s. per foot, to the extent of about 5,000 feet per week; in 1836, from 8s. to 9s. per foot, about 7,000 feet per week; in 1844, 6s. to 7s. per foot, about 23,000 feet per week; in 1846, plate glass sells for from 5s. to 6s. per foot, about 45,000 feet per week, and is now nearly 50,000 feet per week, exclusive of foreign glass, which at these high prices is imported only to a very limited extent.

If the further reduction, pointed out by Mr. Howard, could be made, we are disposed to think, with Sir Robert Peel, "we should supply almost the whole world."

The remission of the duty on plate glass not only relieves the maker from the amount of duty, but frees him from many obnoxious restrictions, and so opens the door to many important improvements, by which great saving may be accomplished in the cost of production. This may be especially looked for in the item of coals, which now forms a much more considerable portion of the cost than may hereafter be necessary.

A new company has been provisionally registered for the manufacture of plate glass in the metropolis, where the advantage is obtained of a sand (Thames sand) excellent in quality, at a small expense.

IMPROVEMENT OF SHEET GLASS.

Mr. J. T. Chance and Mr. H. Badger have obtained a patent for improvements in the manufacture of glass. This invention relates—first, to an improved method of re-heating sheets, panes, plates, or other articles of glass, for the purposes of staining, painting, or enamelling. It has hitherto been effected by placing the sheets, or plates of glass, upon metallic shelves, in a muffle, and applying the heat externally; or by placing the articles upon the bed of a kind of reverberating kiln, which bed is either formed of stone or burned clay, and is well understood. By the first of these methods it is difficult to keep the plates of glass from bending or becoming cockled; and in the latter, the direct action of the flame is injurious to the glass.

The first part of these improvements consists in applying the heat in such a manner, that the advantages of both the foregoing methods may be retained without their accompanying defects. In carrying out this improvement, the patentees place the articles to be re-heated in a reverberatory, on a bed, which they prefer to be of stone, and cover them with an inverted pan of sheet iron. This pan is furnished with an aperture in the top, to which is connected a tube leading to the outside of the kiln, in order to allow the escape of any vapour which may arise within the cover. The heat and flame are allowed to reverberate in the arch or roof of the kiln, and escape by the chimney, which should be furnished with a damper. In order to facilitate the working of this principle, the reverberatory kiln used is furnished with rails, to which suitable carriages are fitted, supporting the stone beds and covers on which the articles of glass are placed, and by this means more readily introduced and removed from the kiln, after which they are heated and cooled in the usual way. In order to save time, the beds and covers should be heated in another small kiln before being used in the reverberatory kiln.

HULL GLASS COMPANY.—We are requested by the chairman of this company to say, that the statements in foreign papers, respecting proceedings at the Hull Works,* are without foundation.

* See p. 545, *ante*.

RESTORATION OF COLOGNE CATHEDRAL.

We have from time to time made our readers acquainted with the progress of the restoration of this structure. A connected view of the circumstances attending it, condensed from the present number of *The Quarterly*, may nevertheless prove interesting.

"The cathedral of Cologne, after the lapse of six centuries since the first stone was laid, and nearly three and a half since the last was left, is now, as is generally known, once more advancing according to its original intention. Royal patronage has been extended—public enthusiasm excited—the original plans for portions of the building discovered—forests of scaffolding have arisen, and for four years, the silver sound of the trowel has resounded from morning till night around the old walls. Nor does it seem too visionary to expect, that the present generation will live to see the completion of one of the finest religious edifices which the world possesses."

"Without attempting to trace the history of Gothic architecture, or insisting either on the principle of practical utility, or the spirit of religious symbolism, for its real origin, we must yet remind the reader that, in the countries to which it distinctively belongs, its highest development was attained under three contemporary sovereigns of eminent talents, worth, and piety. Cologne Cathedral was founded in 1248—at the time that Frederic II. was Emperor of Germany, Henry III. King of England, and St. Louis King of France."

The Choir.—"This stupendous structure, itself 208 feet high, rises, as many of our readers have seen, out of a forest of piers and pinnacles, each attached to the building alternately by a double and fourfold row of gigantic flying buttresses, which break the bristling *chevaux de frise* of perpendicular lines, and relieve, though they amaze, the eye. Yet not placed there for any eye-service, but for the strictest use; the buttresses resisting the pressure of that enormous weight of roof, the piers weighting the ends of the buttresses, and increasing their strength; each pier a miniature church in itself, its shape that of a cross, rising into four corner spires, with one centre steeple or pinnacle; each spire and pinnacle edged at each angle by a row of crockets terminating in a finial—each crocket the *Marien Blume*, or flower of Mary, what we call the lady's slipper—each finial a rose, the emblem of mystery—whence the saying *sub rosâ*; while, from roof, and wall, and pier protrude innumerable grotesque pipe-heads—demons, dragons, monkeys, monstrosities; in the opinion of some, the fantastic creations of the architect's own imagination; according to Boisserée, imitations of the gobling and wood-demons in which the times believed; but according to the symbolist, representations of the bad spirits which the church holds without her walls, and yet compels to do her service."

"And here it may be as well to recall the precise state of incompletion in which (as some not distant generation may find it difficult to believe) the cathedral for so many centuries was left. The original intention comprehended choir and double transepts, a stately nave, with double aisles, a centre tower where nave and choir join, and two towers at the west end. The internal height of choir and nave alike, namely, 150 feet—that of the aisles and transepts 61 feet—the whole length of the building 500 feet, its width 150 feet, and the height of the towers 536 feet, which would have made them the highest in Christendom. Of this, the choir, as we have said, was finished, with a portion of the east wall of each transept. The north aisles had attained their destined height, the four great windows complete, with coloured glass in them, and seven compartments of the roof groined over. The south aisles had stopped midway, their interior piers having only reached the height of 42 feet, and the windows being arrested at the spring of the arch. The southern tower had grown up in two stories to the elevation of 170 feet. The northern tower stood like a tooth just piercing the gum—one pier partly *through* to the height of 22 feet, the rest still below the surface. Part of the façade of the northern transept was visible about 6 feet; and of such portions of both transepts, west front, and northern tower, as were not yet above the earth, the foundations were supposed to be perfect within. Thus there was a gap between choir and aisles, another between north and south tower, and a vacant space in the nave. In other words, the head was perfect, the shoulders just begun, the legs with one foot partly grown—but the whole body still wanting. For present use, therefore, temporary roofs had been thrown over the southern aisles and such compartments of the northern as had not been groined with stone. The gap between the choir and south aisles was filled up by a temporary wall; that between choir and northern aisles supplied by the intrusive Church of Sta. Maria, and a wooden screen run up between the two towers.

Thus stood, therefore, the incomplete form of an all-complete idea, from which, as from a text-book, almost every religious edifice erected contemporaneously had drawn instruction,—which had contributed to build Strasburg near, and to finish Burgos afar off, and which shews its helping influence in Freiburg, Ratisbonn, Prague, Utrecht, Amiens, Beauvais, Chalons, and numerous other foreign churches that might be mentioned, besides supplying an architect to our own York. There stood the imperfect specimen of the most perfect period of ecclesiastical Gothic—so full of thought that every detail has a meaning—so practical in adaptation that every detail has a use—so true in structure that, were the walls knocked away, it would still stand firm on its piers like a tent; and with all these causes combined, so perfect in national beauty, that Boisserée had christened it, 'the Canon of German architectural law.' And centuries passed away without knowing it to be such. Nay, far from appreciating the tenth wonder of the world that stood among them, men looked upon it with ill-will, as a monstrous mistake, which the barbarity of their forefathers had entailed upon them; an eye-sore to their city, and a drain to their pockets; and to be kept standing only to avoid the greater cost of pulling it down."

The original drawings being discovered, a feeling in favour of the restoration was induced; and, in 1824, the Government resolved to undertake the repairs in the fullest extent.

"This included every portion of the exterior, from the grandest rockwork masses of strength to the minutest lacework tracery of ornament; and a host of workmen, chiefly gathered from the city itself, were soon organised in regular squadrons and actively engaged. The roof and walls, in themselves a gigantic undertaking, were first thoroughly secured. The magnificent buttresses, which, with their flying wings, and forest of bristling piers and pinnacles, were by far the most expensive and intricate section of the work, were fourteen of them in part rebuilt, and all repaired. The stone shafts and tracery of the enormous choir windows, fifty-four feet high, which, instead of protecting, had begun to demolish the gorgeous coloured glass in them, were entirely renewed, and the glass itself, broken, maimed, and obscured with the coatings of centuries, was taken out, cleaned and mended. When the exterior had thus renewed its youth, the interior was cared for in turn. Here every damaged or failing feature, in stone, marble, or metal, passed under the healing hand of the careful workman. The walls were cleansed from every stain—new and old stone united under the same tempered colour — the gold stars in the roof twinkled again from their places— the beautiful leafy capitals lay with their golden foliage upon a scarlet ground—the figures of the apostles upon the piers, with their gorgeous brackets and canopies, revelled in the brightest hues the palette could supply; and then the coloured glass was replaced, and the light which streamed in upon the restored decencies of the holy place was richer and more glowing than it had been for ages."

"At this juncture the King of Prussia died—his present majesty ascended the throne; all favours and all grievances hastened to unfold themselves in the first sunshine of his popularity; a cry of '*Jetzt oder nie*,'—now or never—was echoed from journal to journal along the Rhine; the citizens of Cologne met together—made glowing speeches, and quoted Göethe, Schlegel, Boisserée, Walraff, and every other writer who had even alluded to the cathedral—the first outline of a *Dombau Verein*, or Cathedral-building Society, was formed; and, finally, a requisition, signed by two hundred of the most respectable citizens, reporting their wants and wishes, and imploring royal help and sanction, reached Berlin in Sep-

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